



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

UNDERGROUND INJECTION CONTROL PERMIT NUMBER PAS2D251BERI
AUTHORIZATION TO OPERATE A CLASS IID INJECTION WELL

In compliance with provisions of the Safe Drinking Water Act, as amended, (42 U.S.C. §§ 300f-300j-11, commonly known as the SDWA), the Resource Conservation and Recovery Act (42 U.S.C. §§ 6901-6991i, commonly known as RCRA) and attendant regulations promulgated by the U. S. Environmental Protection Agency (EPA) under Title 40 of the Code of Federal Regulations (CFR).

Range Resources-Appalachia, LLC

380 Southpointe Blvd.

Suite 300

Cannonsburg, Pennsylvania 15317

is authorized by this permit to inject fluids through a Class IID injection well from a facility located at the NEA Cross #2 disposal well, U. S. Route 19, Waterford Township, Erie County, Pennsylvania into the Gatesburg Sandstone in accordance with the conditions set forth herein.

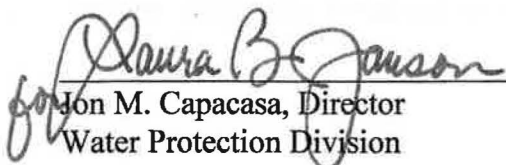
All references to Title 40 of the Code of Federal Regulations are to all regulations that are in effect on the date that this permit is effective.

This permit was first issued and became effective on November 29, 1985.

The reissuance of this permit shall become effective on July 1, 2011.

This permit and its authorization to inject shall remain in effect until midnight
2021.

Signed this 1st day of July, 2011.


Jon M. Capacasa, Director
Water Protection Division

PART I

A. Effect of Permit

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. The underground injection activity, otherwise authorized by this permit, shall not allow the movement of fluid containing any contaminant into underground sources of drinking water, if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 141 or may otherwise adversely affect the health of persons. Any underground injection activity not authorized in this permit or otherwise authorized by rule is prohibited. Issuance of this permit does not convey property rights or mineral rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Compliance with terms of this permit does not constitute a defense to any action brought under Part C and the imminent and substantial endangerment provisions in Part D of the SDWA or any other common or statutory law for any breach of any other applicable legal duty.

B. Permit Actions

This permit can be modified, revoked and reissued or terminated for cause as specified in 40 CFR §§ 144.12, 144.39 and 144.40. Also, the permit is subject to minor modifications as specified in 40 CFR § 144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the permittee shall not stay the applicability or enforceability of any permit condition.

C. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

D. General Requirements

1. Duty to Comply. The permittee shall comply with all applicable UIC Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application.

2. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

4. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective operational performance, effective site security, adequate funding for operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of this permit.

5. Duty to Provide Information. The permittee shall furnish the Director, within a reasonable time, specified by the Director, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit. If the permittee becomes aware of any incomplete or incorrect information in the permit application or subsequent reports, the permittee shall promptly submit information addressing these deficiencies.

6. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor any substances or parameters at any location, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by SDWA.

7. Penalties. Any person who violates a permit requirement is subject to civil penalties, fines and other enforcement actions under the SDWA and may be subject to the same such

actions pursuant to RCRA. Any person who willfully violates permit conditions is subject to criminal prosecution.

8. Transfer of Permits. This permit is not transferable to any person except after notice is sent on EPA Form 7520 and approval is given by the Director and the requirements of 40 CFR § 144.38 are satisfied. The Director may require modification or revocation of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the SDWA.

9. Signatory Requirements.

a. All reports required by this permit and other information requested by the Director shall be signed as follows:

(1) for a corporation, by a responsible corporate officer of at least the level of vice-president;

(2) for a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

(3) for a municipality, State, Federal, or other public agency by either a principal executive or a ranking elected official.

b. A duly authorized representative of the official designated in paragraph a. above may also sign only if:

(1) the authorization is made in writing by a person described in paragraph a. above;

(2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or a position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and

(3) the written authorization is submitted to the Director.

c. If an authorization under paragraph b. of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph b. of this section must be submitted to the Director prior to or together with any reports, information or applications to be signed by an authorized representative.

d. Any person signing a document under paragraph a. or b. of this section shall make the following certification:

"I certify under the penalty of law that this document and all attachments were provided under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who may manage the system, or those persons directly responsible for gathering information, the information submitted is to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

10. Confidentiality of Information.

a. In accordance with 40 CFR Parts 2 (Public Information) and § 144.5, any information submitted to the Director pursuant to these permits may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2.

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or permittee.

(2) Information which deals with the existence, absence, or level of contaminants in drinking water.

11. Reapplication.

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must submit a complete application for a new permit at least 100 days before this permit expires.

12. State Laws.

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.

PART II

A. General

Copies of all reports and notifications required by this permit shall be signed and certified in accordance with the requirements of Section D(9) of Part I of this permit and shall be submitted to the Director at the following address:

Water Protection Division
Ground Water & Enforcement Branch (3WP22)
United States Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103-2029

B. Record Retention

1. The permittee shall retain records of all monitoring and other information required by this permit, including the following (if applicable), for a period of at least five (5) years from the date of the sample measurement, report or application. This period may be extended by request of the Director at any time.

a. All data required to complete the permit application form for this permit and any supplemental information submitted under 40 CFR § 144.31.

b. Calibrations and maintenance records, all strip chart recordings for continuous monitoring instrumentation, and copies of all reports and logs required by this permit. This period may be reduced if the operator obtains written approval from the Director to discard the records.

2. The permittee shall retain records concerning the nature and composition of all injected fluids as listed in Part II, paragraphs C.3. through C.5. of this permit until three (3) years after the completion of any plugging and abandonment procedures.

3. The permittee shall continue to retain the records after the above specified retention periods unless he delivers the records to the Director or obtains written approval from the Director to discard the records.

4. Records of monitoring information shall include:

a. The date, exact place, and the time of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

- c. A precise description of both sampling methodology and the handling (custody) of samples;
- d. The date(s) analyses were performed;
- e. The individual(s) who performed the analyses;
- f. The analytical techniques or methods used; and
- g. The results of such analyses.

5. Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited in Part II, paragraph C.1. below.

6. All environmental measurements required by the permit, including, but not limited to measurements of pressure, temperature, mechanical integrity (as applicable) and chemical analyses shall be done in accordance with EPA guidance on quality assurance.

C. Monitoring Requirements

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the fluid to be analyzed and the procedure for analysis of the sample shall be in accordance with test procedures approved under 40 CFR § 136.3 and Appendix III of 40 CFR Part 261 unless otherwise approved by the Director. The permittee shall identify the types of tests and methods used to generate the monitoring data.

2. Injection pressure, annular pressure, flow rate and cumulative volume shall be observed and recorded continuously beginning on the date when the well commences operation and concluding when the well is plugged and abandoned. .

3. The permittee shall sample, analyze and record the nature of the injected fluid for the parameters listed below on a yearly basis or whenever the injection fluid is changed, if that change perceptively alters the makeup of the injection fluid. A change in injection fluid may occur due to new sources (e.g., from different geologic formations, geographic regions, etc.) of produced fluid being received. Any change in injection fluid where the specific gravity of the fluid becomes denser is very important, because this can affect the maximum permitted injection pressure for the injection well (see condition C.4 below). If the operator intends to significantly change or add to the makeup of his injection fluid, as mentioned above, he shall notify and request the Director's approval prior to this change.

- | | |
|----------------------------|-------------------------|
| -pH | -Manganese |
| -Specific Gravity or Fluid | -Total Dissolved Solids |
| -Specific Conductance | -Barium |
| -Sodium | -Hydrogen Sulfide |
| -Iron | -Dissolved Oxygen |
| -Magnesium | -Alkalinity |
| -Chloride | -Hardness |
| -TOC | |

4. Samples of injection fluid shall be collected and analyzed from initial loads received from each disposal customer and each type of source (e.g., from different geologic formations, geographic regions, etc.). Minimum analyses of the fluid will include specific gravity, total dissolved solids, pH and total organic carbon (TOC). Any analysis of specific gravity greater than 1.13 and any analysis of TOC greater than 250 mg/l shall be reported to the Director within twenty four hours of the results.

5. The permittee shall maintain a shipping record of every truckload of fluid received. The shipping record shall include the hauler's name, the operator(s) name and location from whom the load was obtained, the volume of the load and whether the truckload of fluid delivered was a split load. If the truckload was a split load, each operator's name and location shall be listed and, if possible, the volumes of fluid received from each operator documented.

6. A demonstration of mechanical integrity in accordance with 40 CFR § 146.8 shall, after the initial demonstration, be made at least **once every two years**. Each subsequent demonstration shall be conducted no more than thirty (30) days prior to the two-year testing period. In addition to the above requirement, a mechanical integrity test demonstration shall be conducted whenever protective casing or tubing is removed from the well, the packer is reseated, or a well failure is evident. The permittee may continue operation only if he has successfully demonstrated to the Director the mechanical integrity of the permitted wells. The permittee shall cease injection operations if a loss of mechanical integrity becomes evident or if mechanical integrity cannot be demonstrated. Any such test shall be conducted in keeping with the notification requirements of Permit Condition D.11. of Part II of this permit.

D. Reporting and Notification Requirements.

1. Report on Permit Review. Within thirty (30) days of receipt of this permit, the permittee shall report to the Director that he has read and is personally familiar with all terms and conditions of this permit.

2. Commencing Injection. The operator of a new injection well may not commence injection until construction is complete, and

a. The permittee has demonstrated to EPA that the injection well has mechanical integrity in accordance with 40 CFR § 146.8 and the permittee has received written notice from the Director that such demonstration is satisfactory;

b. The permittee has submitted notice of completion of construction (EPA Form 7520-10) to the Director; and

c. The Director has inspected or otherwise reviewed the new injection well and finds it is in compliance with the conditions of the permit; or

d. The permittee has not received notice from the Director of his or her intent to inspect or otherwise review the new injection well within thirteen (13) days of the date of the notice in paragraph (a) of this permit condition, in which case, prior inspection or review is waived and the permittee may commence injection.

3. Twenty-four Hour Reporting.

a. The permittee shall report to the Director any noncompliance which may endanger health or the environment. Such report shall be provided orally (phone numbers: (215) 814-5445, Karen Johnson or (215) 814-5464, Stephen Platt) within 24 hours from the time the permittee becomes aware of the circumstances. The following shall be included as information which must be reported orally within 24 hours:

(1) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water.

(2) Any noncompliance with a permit condition, or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water, or failure of mechanical integrity test demonstrations.

b. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

4. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

5. Other Noncompliance. The permittee shall report all other instances of noncompliance in writing within ten (10) days of the time the permittee becomes aware of the circumstance. The reports shall contain the information listed in Permit Condition D.3., of Part II of this permit.

6. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

7. Conversion. The permittee shall notify the Director thirty (30) days prior to the conversion of the well to an operating status other than an injection well.

8. Temporary Abandonment. The permittee shall notify the Director prior to the temporary abandonment of the injection well.

9. Annual Report. The permittee shall submit its Annual Report, EPA Form 7520-11 (Annual Disposal/Injection Well Monitoring Report) to the Director summarizing the results of the monitoring required by Permit Conditions C of Part II and C of Part III of this permit. This report shall include monthly monitoring records of injected fluids, the results of any mechanical integrity test(s), and any major changes in characteristics or sources of injected fluids. The Annual Report shall be submitted not later than January 31st, summarizing the activity of the calendar year ending the previous December 31st.

10. Plugging and Abandonment Reports and Notifications.

a. The permittee shall notify the Director forty-five (45) days before the plugging and abandonment of the well. The Director may allow a shorter notice period upon written request.

b. Revisions to the Plugging and Abandonment Plan must be submitted to the Director no less than forty-five (45) days prior to plugging and abandonment. The Director must approve the revisions prior to the start of plugging operations.

c. Within sixty (60) days after plugging the well, the permittee shall submit a report to the Director which shall consist of either:

(1) A statement that the well was plugged in accordance with the plan previously submitted to and approved by the Director; or (2) Where actual plugging differed from the plan previously submitted, an updated version of the plan, on the form supplied by the Director, specifying the different procedures used.

The report shall be certified as accurate by the person who performed the plugging operation.

11. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than thirty (30) days following each schedule date.

12. Mechanical Integrity Tests. The permittee shall notify the Director of his intent to conduct a mechanical integrity test at least thirty (30) days prior to such a demonstration.

13. Cessation of Injection Activity. After a cessation of injection for two years the owner or operator shall plug and abandon the well in accordance with the Plugging and Abandonment Plan unless he:

a. Provides notice to the Director; and

b. Describes actions or procedures, satisfactory to the Director, that the permittee will take to ensure that the well will not endanger USDWs during the period of temporary abandonment. These actions and procedures shall include compliance with the technical requirements applicable to an active injection well unless waived in writing by the Director.

E. Mechanical Integrity Standards

1. Standards. The permittee shall have and maintain the mechanical integrity of the permitted injection well in accordance with to 40 CFR § 146.8.

2. Request from Director. The Director may, by written notice, require the permittee to demonstrate mechanical integrity at any time.

Part III

A. Construction Requirements

1. Notwithstanding any other provision of this permit, the injection well shall inject only into formations which are separated from any Underground Source of Drinking Water by a confining zone that is free of known open faults or fractures within the Area of Review.

2. Casing and Cementing. The permittee will case and cement the well to prevent the movement of fluids into or between underground sources of drinking water. The casing and cement used in the construction of the well shall be designed for the life expectancy of the well and, at minimum, the operation shall be conducted in accordance with the construction details described in the applicant's permit application as well as the operating conditions specified in this permit. However, in all cases cemented surface casing shall be installed from the surface to a depth at least fifty feet below the lowermost underground source of drinking water and the injection zone shall be isolated by the use of cemented long string casing and tubing run on a packer.

3. Mechanical Integrity. Injection operations are prohibited until the permittee demonstrates that the well covered by this permit has mechanical integrity in accordance with 40 CFR Part 146.8 of the UIC regulations and the permittee has received notice from the Director that such a demonstration is satisfactory in accordance with the provisions of Condition D.2. of Part II of this permit.

4. Corrective Action. Injection operations are prohibited until the permittee has successfully performed all activities detailed in the Corrective Action Plan submitted in their Permit Application and hereby incorporated. If any abandoned well is discovered within the area of review as identified in the Permit Application, the permittee shall notify the Director upon discovery and within five (5) days, submit to the Director for approval, a plan for corrective action and implement the approved plan.

B. Operating Requirements

1. Injection Formation. Injection shall be limited to the Gatesburg Sandstone in the subsurface interval between 6410 feet and 6530 feet below surface elevation.

2. Injection Fluid. The permittee shall not inject any hazardous substances, as defined by 40 CFR 261 nor any other fluid, other than the fluids produced in association with oil and gas production activity (e.g., produced brines, drilling fluids, fracing fluids, etc.).

3. Injection Volume Limitation. The injection volume shall be limited so as not to exceed 45,000 bbls/month.

4. Injection Pressure Limitation. Injection pressure, measured at the surface, shall not exceed a maximum of 1,570 psi. The bottom-hole pressure shall not exceed a maximum of 4,711 psi. These pressure calculations are based on the specific gravity of the injection fluid not exceeding 1.13. If the specific gravity of the injection fluid should exceed 1.13, then the surface injection pressure must be revised downward so as not to exceed the bottomhole maximum pressure. Injection at a pressure which initiates new fractures or propagates existing fractures in the confining zone adjacent to underground sources of drinking water or causes the movement of injection or formation fluids into an underground source of drinking water is prohibited.

5. Injection between the outermost casing protecting underground sources of drinking water and the well bore is prohibited, as is injection into any USDW.

C. Special Monitoring Requirements

1. Monitoring Points. The permittee shall conduct a ground water monitoring program as specified in this section at monitoring wells numbered 1, 2, and 4 as identified in the attached map and incorporated herein.

2. Monitoring Parameters. The permittee shall conduct this monitoring program to obtain information on the following parameters: pH, total alkalinity, total dissolved solids, calcium, magnesium, sodium, sulfates, chlorides, oil and grease.

3. Monitoring Schedule and Reports. The permittee shall conduct this monitoring program on a quarterly basis and provide a report to EPA on the sampling results on a quarterly basis.

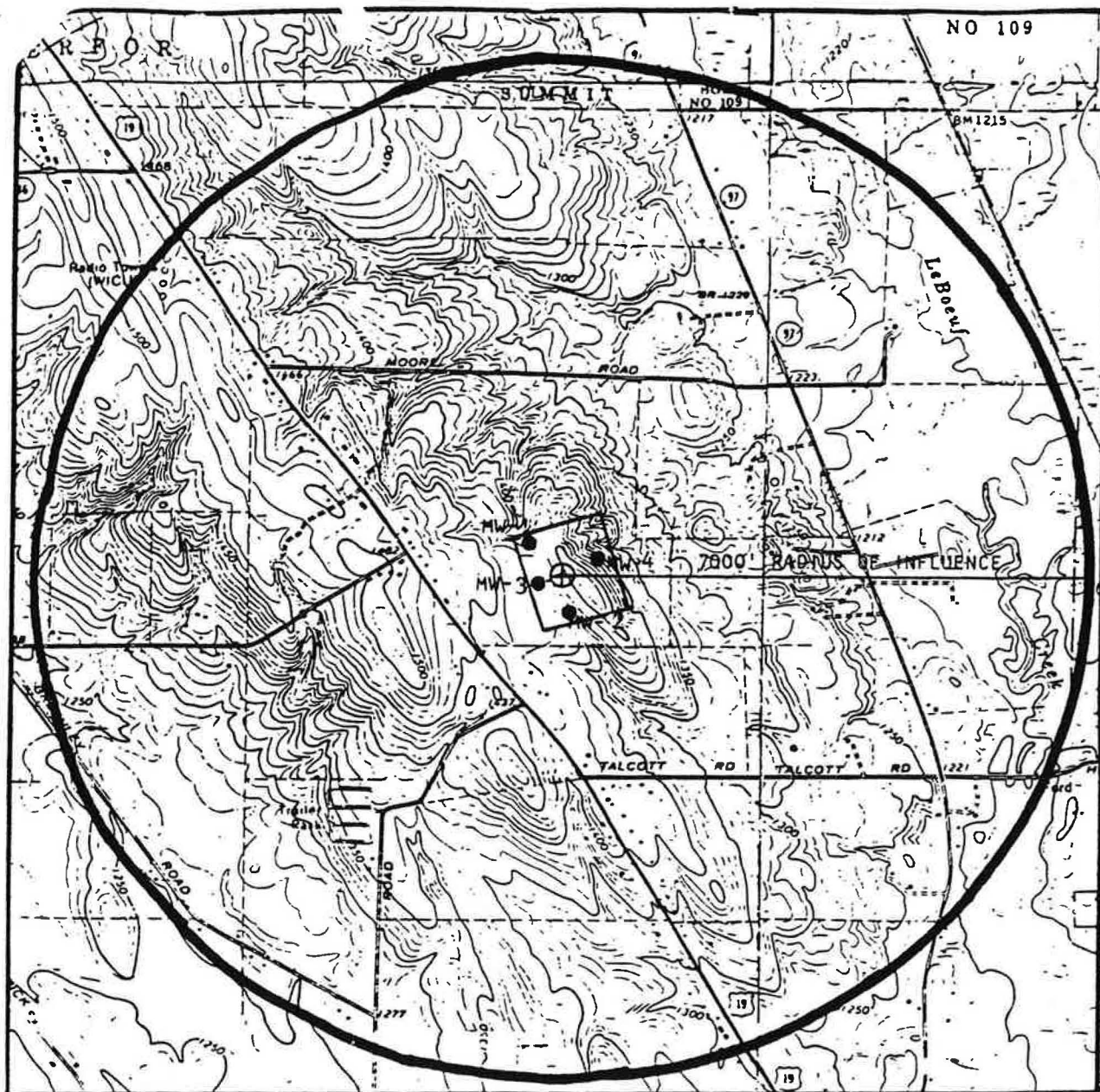
D. Plugging and Abandonment

1. The permittee shall plug and abandon the well in accordance with the approved plugging and abandonment plan (EPA Form 7520-14) provide in the Permit Application, which is hereby incorporated.

2. Plugging and Abandonment shall be conducted in such a manner that movement of fluids will not be allowed into or between underground sources of drinking water.

E. Financial Responsibility.

The permittee shall maintain continuous compliance with the requirement to maintain financial responsibility and resources to close, plug and abandon the underground injection well. A Surety Bond, with U.S. Fidelity and Guaranty Company, in the amount of \$50,000, has been obtained. In addition, a Standby Trust Agreement with Cassidy, Kotjarapoglus and Pohland, p.c. has been obtained. If the financial responsibility demonstration should change, the permittee shall provide advance notification to the Director. The permittee shall not substitute an alternative demonstration of financial responsibility for that which the Director has approved, unless he has previously submitted evidence of that alternative demonstration to the Director and the Director notifies him that the alternative demonstration of financial responsibility is acceptable. The Director may require the permittee to submit a revised demonstration of Financial Responsibility if the Director has reason to believe that the original demonstration is no longer adequate to cover the costs of plugging and abandonment.



Scale 1" = 2000'

Cambridge Springs, N.E.
Waterford, Pennsylvania
U.S.G.S. 7½ Minute
Topo. Quades.

WELL LOCATION MAP
NEA CROSS COMPANY
CROSS #2 WELL

- ⊕ DISPOSAL WELL LOCATION
- MONITORING WELL LOCATION
- FACILITY PROPERTY LINE

Prepared by:
MOODY AND ASSOCIATES, INC.

